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Title

A new structural framework for parity equation-based failure detection and isolation.

Source

Automatica, {Automatica-UK}, March 1990, vol. 26, no. 2, p. 381-8, 22 refs, CODEN: ATCAA9, ISSN: 0005-1098, UK.

Author(s)

Gerlet-J, Singer-D.

Author affiliation

Gerlet, J., Dept. of Electr. & Comput. Eng., George Mason Univ., Fairfax, VA, USA.

Abstract

Describes a new framework for developing parity equations that prevent incorrect isolation decision under marginal size failures in a decision **process** that tests each residual independently. Test **thresholds** that take the noise conditions into account are set high to reduce the occurrence of false **alarms** while maintaining the algorithm's ability to detect and isolate larger failures. The method is applicable to additive failures on the measured input and output variables and to additive plant disturbances. A transformation algorithm provides a multiple of models that satisfy the isolability requirements. A search procedure utilizing this model redundancy integrates model robustness consideration into the design.

Descriptors

DECISION-THEORY; REDUNDANCY; RELIABILITY-THEORY; SEARCH-PROBLEMS.

Classification codes

C1210B Reliability-theory*;

C1140E Game-theory;

E1020 Maintenance-and-reliability*.

Keywords

reliability-theory; failure-isolation; parity-equation-based-failure-detection; **decision-process**; noise-conditions; additive-plant-disturbances; search-procedure; model-redundancy; model-robustness.

Treatment codes

T Theoretical-or-mathematical.

Language

English.

Publication type

Journal-paper.

Availability

CCCC: 0005-1098/90/\$3.00+0.00.

Publication year

1990.

Publication date

19900300.

Edition

1990015.

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1 [Reasoning about systems with many processes](#)


 Steven M. German, A. Prasad Sistla
 July 1992 **Journal of the ACM (JACM)**, Volume 39 Issue 3

Publisher: ACM Press

Full text available: pdf(4.54 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Methods are given for automatically verifying temporal properties of concurrent systems containing an arbitrary number of finite-state processes that communicate using CCS actions. Two models of systems are considered. Systems in the first model consist of a unique control process and an arbitrary number of user processes with identical definitions. For this model, a decision procedure to check whether all the executions of a process satisfy a given specification ...

2 [A survey of structured and object-oriented software specification methods and techniques](#)


 Roel Wieringa
 December 1998 **ACM Computing Surveys (CSUR)**, Volume 30 Issue 4

Publisher: ACM Press

Full text available: pdf(605.26 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This article surveys techniques used in structured and object-oriented software specification methods. The techniques are classified as techniques for the specification of external interaction and internal decomposition. The external specification techniques are further subdivided into techniques for the specification of functions, behavior, and communication. After surveying the techniques, we summarize the way they are used in structured and object-oriented methods and indicate ways in which ...

Keywords: languages

3 [Automating parallel simulation using parallel time streams](#)


 Victor Yau
 April 1999 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 9 Issue 2

Publisher: ACM Press

Full text available: pdf(194.69 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


This paper describes a package for parallel steady-state stochastic simulation that was designed to overcome problems caused by long simulation times experienced in our ongoing research in performance evaluation of high-speed and integrated-services communication networks, while maintaining basic statistical rigors of proper analysis of simulation output data. The package, named AKAROA, accepts ordinary (nonparallel) simulation programs, and all further stages of stochastic simulation shou ...

Keywords: distributed simulation, interprocess communication, output analysis methodology, parallel processing, parallel simulation, parallel time streams, spectral analysis, speedup

4 Behavior modelling during software design ☐

William E. Riddle, Jack C. Wileden, John H. Sayler, Alan R. Segal, Allan M. Stavely
May 1978 **Proceedings of the 3rd international conference on Software engineering ICSE '78**

Publisher: IEEE Press

Full text available:  pdf(999.46 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A modelling scheme is presented which provides a medium for the rigorous, formal and abstract specification of large-scale software system components. The scheme allows the description of component behavior without revealing or requiring the description of a component's internal operation. Both collections of sequential processes and the data objects which they share may be described. The scheme is of particular value during the early stages of software system design, when the system's modu ...

Keywords: Desired behavior specification, Dream, Event-based models, Message transfer models, Non-procedural specification, Software design analysis, Software design languages, Software system behavior modelling

5 DREAM - an approach to designing large scale, concurrent software systems ☐



Jack C. Wileden

January 1979 **Proceedings of the 1979 annual conference ACM 79**

Publisher: ACM Press

Full text available:  pdf(731.69 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The Design Realization, Evaluation And Modelling (DREAM) system is an automated support system for designers of large-scale, concurrent software systems. DREAM is intended to facilitate the orderly development of such software systems by supporting high-level, abstract design descriptions and the successive modification and elaboration of incomplete descriptions. DREAM also provides a basis for formulating arguments regarding the correctness of an evolving design at any stage during its dev ...

6 A Quantitative Evaluation of the Feasibility of, and Suitable Hardware Architectures for, an Adaptive, Parallel Finite-Element System ☐



Pamela Zave, George E. Cole


September 1983 **ACM Transactions on Mathematical Software (TOMS)**, Volume 9 Issue 3

Publisher: ACM Press

Full text available:  pdf(1.36 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


7 ☐

A hierarchical controller for concurrent accessing of distributed databases

- ◆ Mohamed G. Gouda
August 1978 **ACM SIGARCH Computer Architecture News , ACM SIGIR Forum , ACM SIGMOD Record**, Volume 7 , 13 , 10 Issue 2 , 2 , 1
Publisher: ACM Press
Full text available:  pdf(460.93 KB) Additional Information: [full citation](#), [abstract](#), [references](#)


An access controller for a distributed database is a (central or distributed) structure which routes access requests to the different components of the database. Such a controller is also supposed to resolve the conflicts between concurrent requests, if any, such that deadlock situations never arise. In this paper, some architectures for distributed access controllers of distributed databases are investigated. In particular, three controllers with hierarchical architectures are considered. The co ...

8 Implementing software configuration control in the structured programming environment ☐


- ◆ H. Ronald Berlack
January 1981 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1981 ACM workshop/symposium on Measurement and evaluation of software quality**, Volume 10 Issue 1
Publisher: ACM Press
Full text available:  pdf(1.04 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The fundamental problems in the control of software are explored. The elements of control as they relate to communications is defined, and the implementation of these elements in solving the fundamental problems and achieving optimal control during a software development life cycle, is explained. Control is defined as a vehicle for communicating changes to established, agreed-upon baseline points, made up of documents and subsequent computer programs. By communicating change to t ...


9 The role of artificial intelligence in fault-tolerant process-control systems ☐

- ◆ F. B. Bastani, I.-R. Chen
June 1988 **Proceedings of the 1st international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 2 IEA/AIE '88**
Publisher: ACM Press
Full text available:  pdf(854.81 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



10 Design of an Adaptive, Parallel Finite-Element System ☐

- ◆ Pamela Zave, Werner C. Rheinboldt
March 1979 **ACM Transactions on Mathematical Software (TOMS)**, Volume 5 Issue 1
Publisher: ACM Press
Full text available:  pdf(1.12 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

11 An Approach to Program Behavior Modeling and Optimal Memory Control ☐



- ◆ Percy Tzelnic, Izidor Gertner
April 1982 **Journal of the ACM (JACM)**, Volume 29 Issue 2
Publisher: ACM Press
Full text available:  pdf(1.37 MB) Additional Information: [full citation](#), [references](#), [index terms](#)

12 A transputer-based parallel Lisp implementation ☐

-  M. D. Feng, C. K. Yuen
 April 1992 **Proceedings of the 1992 ACM annual conference on Communications CSC '92**
 Publisher: ACM Press
 Full text available:  pdf(816.59 KB) Additional Information: [full citation](#), [references](#), [index terms](#)



Keywords: parallel Lisp, speculative processing, transputer, tuple space

13 A hierarchical controller for concurrent accessing of distributed databases 

-  Mohamed G. Gouda
 August 1978 **Proceedings of the fourth workshop on Computer architecture for non-numeric processing CAW '78**
 Publisher: ACM Press
 Full text available:  pdf(401.90 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

An access controller for a distributed database is a (central or distributed) structure which routes access requests to the different components of the database. Such a controller is also supposed to resolve the conflicts between concurrent requests, if any, such that deadlock situations never arise. In this paper, some architectures for distributed access controllers of distributed databases are investigated. In particular, three controllers with hierarchical architectures are c ...



14 XML access control: Access control of XML documents considering update operations 

-  Chung-Hwan Lim, Seog Park, Sang H. Son
 October 2003 **Proceedings of the 2003 ACM workshop on XML security XMLSEC '03**
 Publisher: ACM Press
 Full text available:  pdf(298.78 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

As a large quantity of information is presented in XML format on the Web, there are increasing demands for XML security. Until now, research on XML security has been focused on the security of data communication using digital signatures or encryption technologies. As XML is also used for a data representation of data storage, XML security comes to involve not only communication security but also managerial security. Managerial security is guaranteed through access control, but existing XML access ...

Keywords: XML document, XML update, access control


15 An approach to software configuration control 

-  William Bryan, Stanley Siegel, Gary Whiteleather
 January 1981 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1981 ACM workshop/symposium on Measurement and evaluation of software quality**, Volume 10 Issue 1
 Publisher: ACM Press
 Full text available:  pdf(729.29 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

The purpose of this paper is to discuss the process by which a system's life cycle and its associated life cycle products are managed to ensure the quality and integrity of the system. We call this process configuration control. Although many of the ideas in this paper are applicable to systems in general, the focus of this paper is on configuration control of systems with software content. It is becoming apparent to many, in both government and private ind ...

16 Identifying different paradigms for managing information technology ☐


Sven J. Fischer, Jan Achterberg, Tsvi G. Vinig

June 1993 **Proceedings of the 1993 conference on Computer personnel research SIGCPR '93****Publisher:** ACM PressFull text available:  [pdf\(1.79 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Organizations are shaped based on a number of implicit and explicit assumptions. Usually, these assumptions are made by the founder of a company. Management of Information Technology (IT) is shaped in much the same way. It is based on several assumptions how to carry out information systems development, maintenance, information services, and how to plan for and control all these activities. Based on such assumptions, the authors identify four different approaches or paradigms to management ...

17 Transformation of data flow analysis models to object oriented design ☐


Bruno Alabiso

January 1988 **ACM SIGPLAN Notices , Conference proceedings on Object-oriented programming systems, languages and applications OOPSLA '88**, Volume 23 Issue 11**Publisher:** ACM PressFull text available:  [pdf\(1.27 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes a strategy to transform Data Flow Analysis into Object Oriented Design. This transformation is performed by extracting information from the Data Flow Model, by enriching with Design decision and by finally producing an Object Oriented Design Model. Semiformal transformation rules are described. Also a special notation is introduced to describe the Object Oriented Design Model. The Model used to represent Data Flow Analysis is the one originally proposed by Yourdon, comp ...

18 Information systems security design methods: implications for information systems development ☐

Richard Baskerville

December 1993 **ACM Computing Surveys (CSUR)**, Volume 25 Issue 4**Publisher:** ACM PressFull text available:  [pdf\(3.44 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The security of information systems is a serious issue because computer abuse is increasing. It is important, therefore, that systems analysts and designers develop expertise in methods for specifying information systems security. The characteristics found in three generations of general information system design methods provide a framework for comparing and understanding current security design methods. These methods include approaches that use checklists of controls, divide functional req ...

Keywords: checklists, control, integrity, risk analysis, safety, structured systems analysis and design, system modeling

19 Behavioral control for real-time simulated human agents ☐

John P. Granieri, Welton Becket, Barry D. Reich, Jonathan Crabtree, Norman I. Badler

April 1995 **Proceedings of the 1995 symposium on Interactive 3D graphics SI3D '95****Publisher:** ACM PressFull text available:  [pdf\(1.11 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


A system for controlling the behaviors of an interactive human-like agent, and executing them in real-time, is presented. It relies on an underlying model of continuous behavior as well as a discrete scheduling mechanism for changing behavior over time. A multiprocessing framework executes the behaviors and renders the motion of the agents in real-time. Finally we discuss the current state of our implementation and some areas of future work.

20 Performance analysis of MSP: feature-rich high-speed transport protocol

Thomas F. La Porta, Mischa Schwartz

December 1993 **IEEE/ACM Transactions on Networking (TON)**, Volume 1 Issue 6

Publisher: IEEE Press

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G Eranna, BC Joshi, DP Runthala, RP Gupta - Critical Reviews in Solid State and Material Sciences, 2004 - Taylor & Francis

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5	BRS	L5	2	US-PGPUB; USPAT; USOCR	("4375992" "4917123").PN.	2007/04/20 09:48

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"Particularly" Clean - group of 2 »

DJ Hunt, RA Latimer - Precision Cleaning Magazine, 2000 - semiconductorfabtech.com
 ... process **wafer** lots will trigger the **alarm threshold** and notify ... **CONCLUSION Liquid**
 in-situ particle counting can provide three benefits for **wafer** fab wet ...
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Control system, control method, process system, and computer readable storage medium and computer ...

K Mori - 2006 - freepatentsonline.com
 ... generation, with the number of **alarm** generations taken ... where the time exceeds the **threshold** and warning ... the **wafer** detection sensor 57, the **liquid-process-unit** ...
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Controlling the process with distributed multimedia - group of 4 »

A Guha, A Pavan, JCL Liu, BA Roberts - Multimedia, IEEE, 1995 - ieeexplore.ieee.org
 ... the pro- duction of such advanced materials as **liquid** crys- tal ... a flaw that exceeds the preset **threshold**, the Flexbed system signals an **alarm** to the ...
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System and method for point-of-use filtration and purification of fluids used in substrate ...

I Kashkoush - 2005 - freepatentsonline.com
 ... Sensor module 60 (through **liquid**-borne counter and ionic ... to be above the respective **threshold**, the answer to ... and transmit an activation signal to **alarm** 115 and ...
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Threshold setting assisted by numerical analysis methods in automatic visual inspection using gray- ... - group of 2 »

S Maeda, F Endo, H Makihira, H Kubota - Systems and Computers in Japan, 1998 - doi.wiley.com
 ... examined false alarms included in inspection results in actual **wafer** production and proposed a method to perform **threshold** setting based on the false **alarm** rate ...
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Method and apparatus for dispensing resist solution - group of 3 »

YY Chu, JS Huang, SH Lu, TC Fu - US Patent 6,425,497, 2002 - Google Patents
 ... to apparatus for dispensing a **liquid** resist solution ... 16 is responsive to the **alarm** signal on ... intensity oflight exceeds a preset, **threshold** value, transistor 3Q ...
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HMR Chiu, DO Clark, SW Crawford, JJ Jung, YA Loldj ... - 2006 - freepatentsonline.com
 ... including, but not limited to, **liquid/liquid** scrubbing, physical ... a cable disconnection, is sensed, an **alarm** may sound ... than a pre-determined **threshold** value, eg ...
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Patterned wafer inspection by high resolution spectral estimation techniques

- group of 2 »

BH Khalaj, HK Aghajan, T Kailath - Machine Vision and Applications, 1994 - Springer

... repeating patterns, one can mention **liquid** crystal displays ... algorithm will still give an **alarm** and will ... difference is larger than the **threshold**, identify the ...

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APHT Center, JCLLHT Center, BARHT Center - doi.ieeecomputersociety.org

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Title

Artificial immunity based management system for a semiconductor production line.

Conference information

1997 IEEE International Conference on Systems, Man, and Cybernetics. Computational Cybernetics and Simulation, Orlando, FL, USA, 12-15 Oct. 1997.

Sponsor(s): Syst., Man, & Cybernetics Soc. IEEE.

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1997 IEEE International Conference on Systems, Man, and Cybernetics. Computational Cybernetics and Simulation (Cat. No.97CH36088-5), 1997, vol.1, p. 851-5 vol.1, 6 refs, pp. 5 vol. 4535, ISBN: 0-7803-4053-1.

Publisher: IEEE, New York, NY, USA.

Author(s)

[Mori-K](#), [Tsukiyama-M](#), [Fukuda-T](#).

Author affiliation

Mori, K., Tsukiyama, M., Ind. Electron. & Syst. Labs., Mitsubishi Electr. Corp., Hyogo, Japan.

Abstract

A semiconductor production line is a large scale and complex system. It is considered to be difficult to **control** because there exist lots of malfunctions such as maintenance of equipment, equipment break-down and imbalance of WIP to disturb production of wafers in the semiconductor production system. Methods and systems using simulations or expert systems have been used to solve these disturbances, the but semiconductor production environments change dynamically and therefore these methods alone do not yield a perfect **control** system. This paper presents a method applying an artificial immunity based system described by multi-agent nets, that adapts itself to a dynamical environment.

Descriptors

☒ INTEGRATED-CIRCUIT-MANUFACTURE; ☒ LARGE-SCALE-SYSTEMS; ☒ PETRI-NETS;
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Classification codes

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[E3644A Semiconductor-industry](#).

Keywords

artificial-immunity-based-management-system; semiconductor-production-line; large-scale-complex-system; malfunctions; maintenance; equipment-break-down; WIP-imbalance; **wafer-production**; expert-systems; multi-agent-nets; colored-Petri-nets; dynamical-environment.

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